

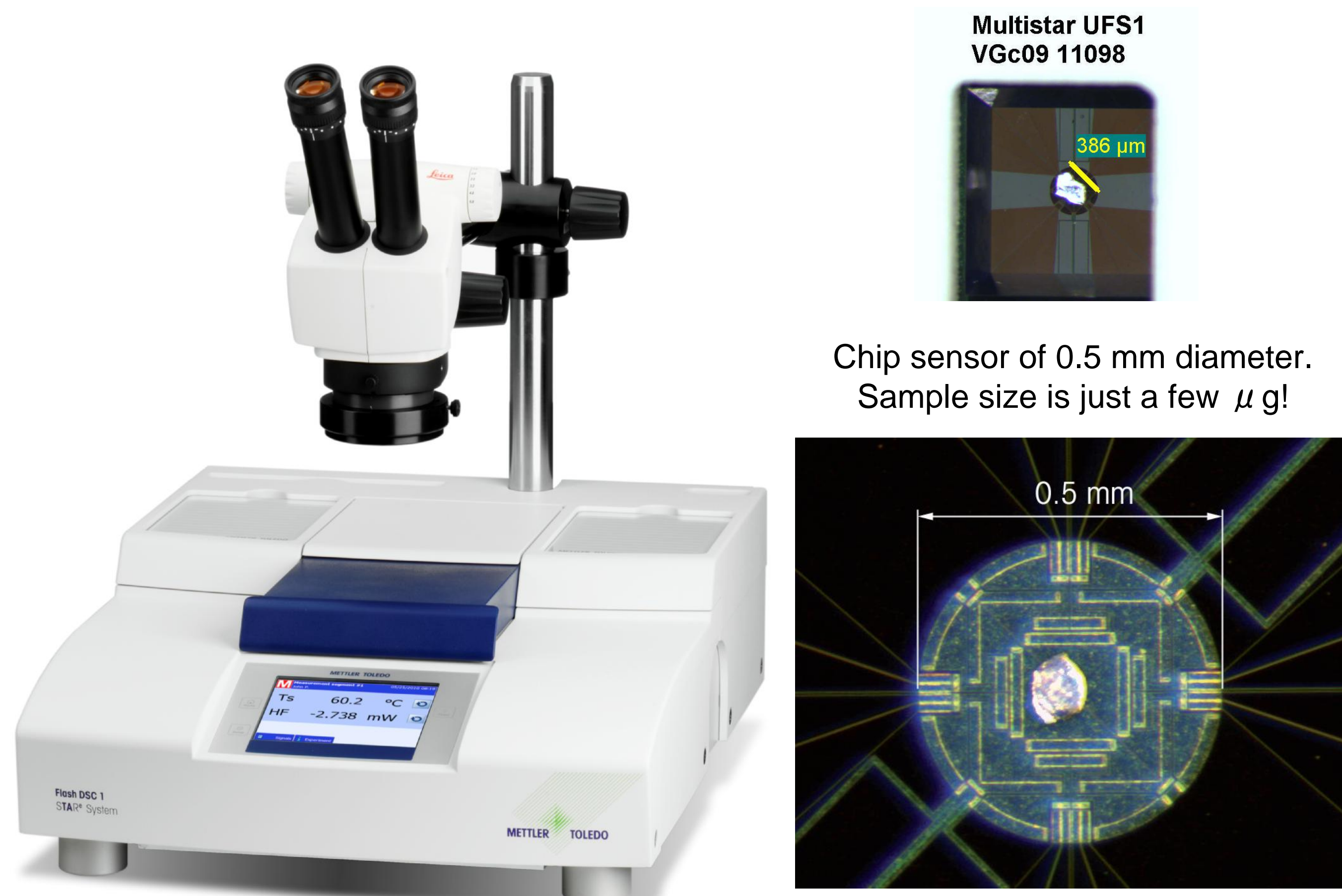
Introduction of New Fast scanning calorimeter: Flash DSC 1

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Sharing knowledge...

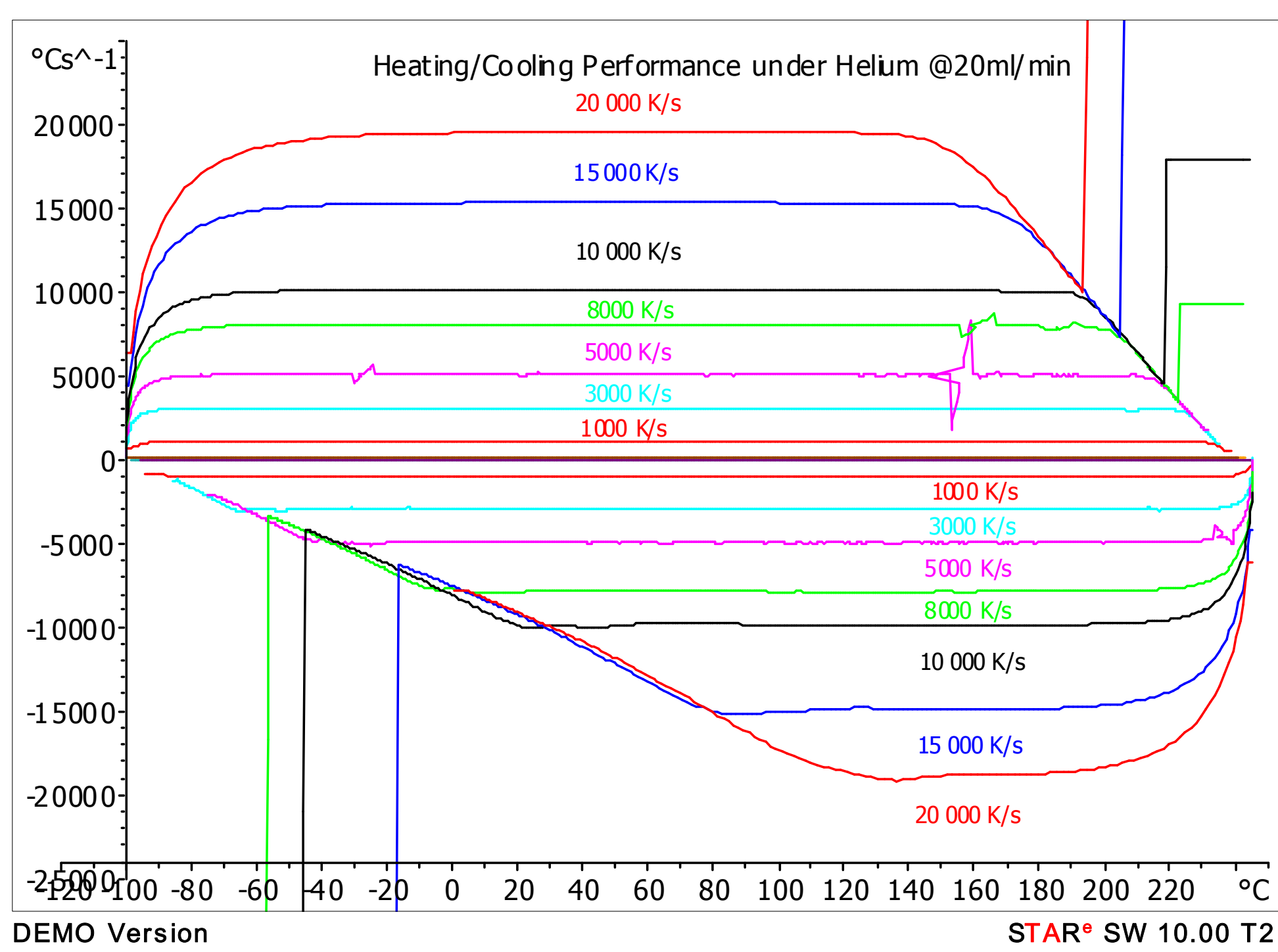
1. Introduction

Flash Differential Scanning Calorimetry (FDSC) allows you to determine the energy absorbed or released by a sample as it is heated or cooled.



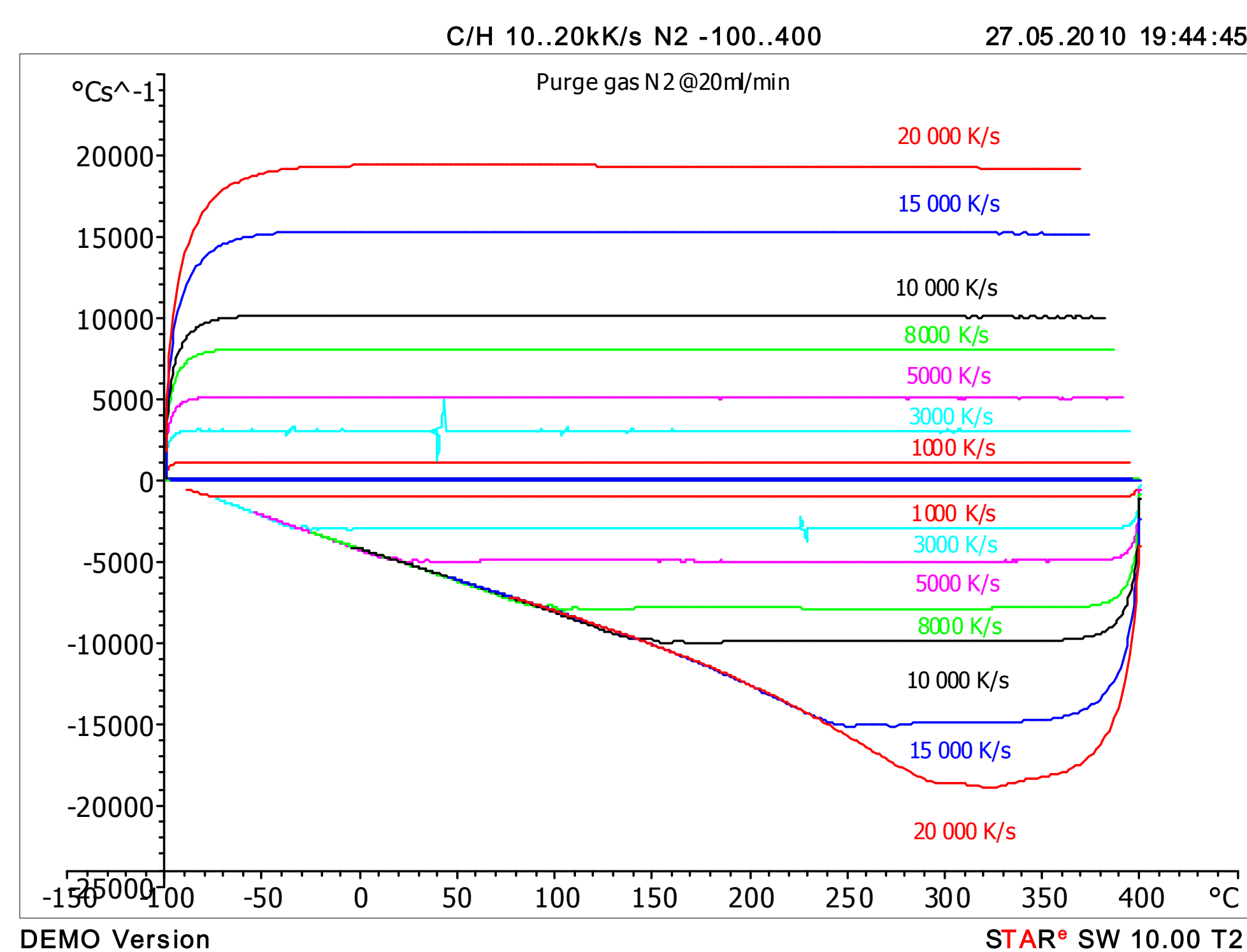
2. Performance

Helium versus Nitrogen



Helium improves drastically the **cooling** performance!

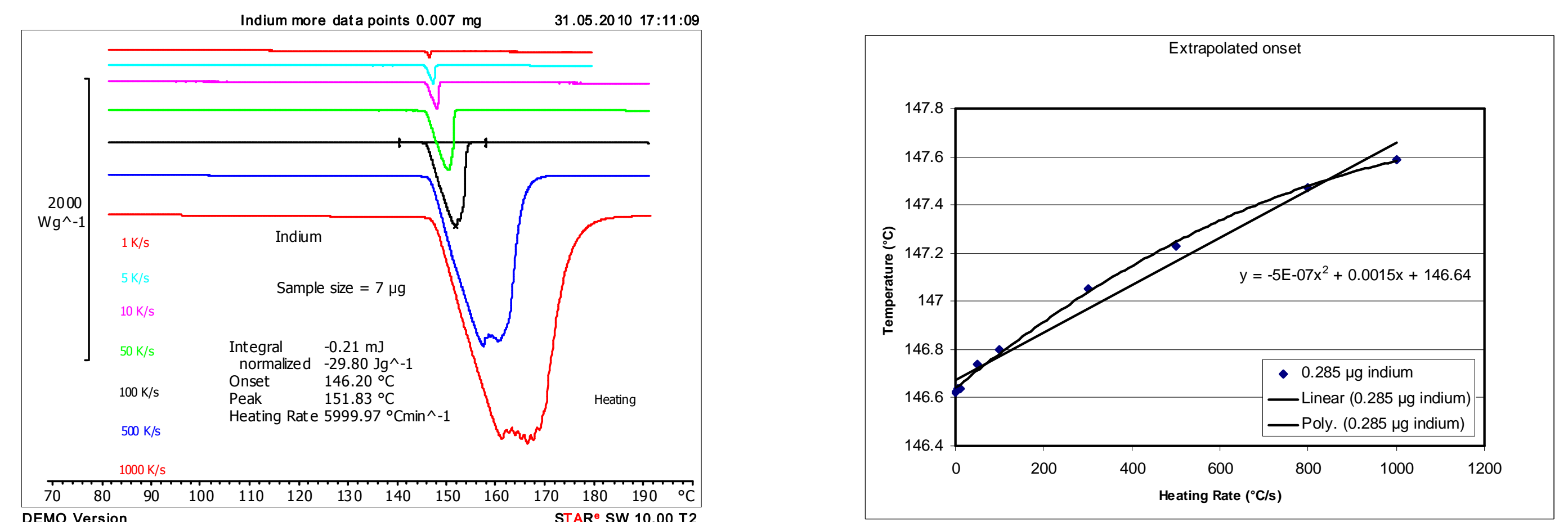
- ❖ He → Cooling @ 10 000 ° C/s till 25 ° C
- ❖ N2 → Cooling @ 10 000 ° C/s till 140 ° C
- ❖ N2 → Cooling @ 5 000 ° C/s till 25 ° C



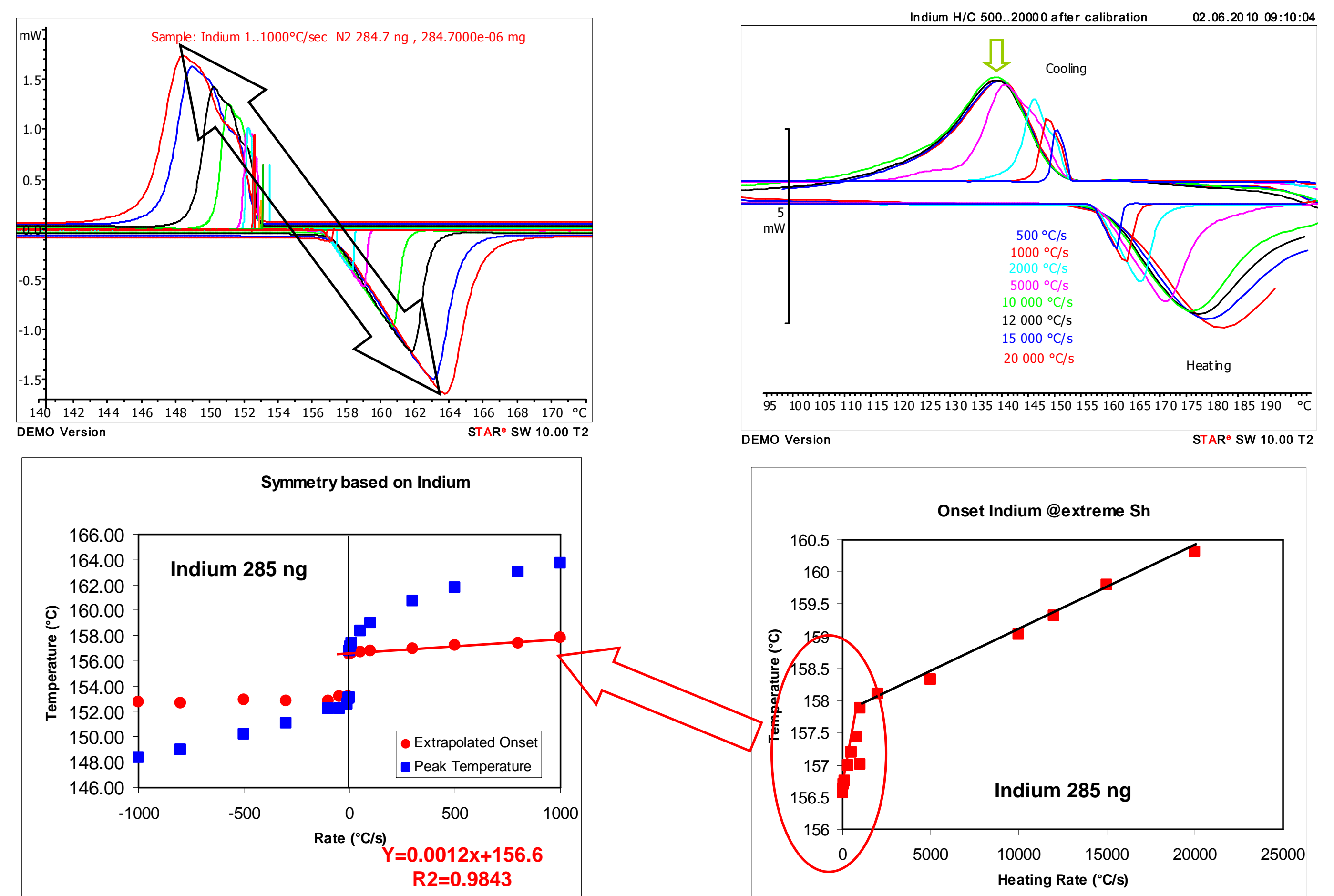
Heating performance under nitrogen is significantly better than under Helium. Rates up to 20 000 K/s under nitrogen are feasible even up to approximately 400 ° C!

3. Calibration with Indium

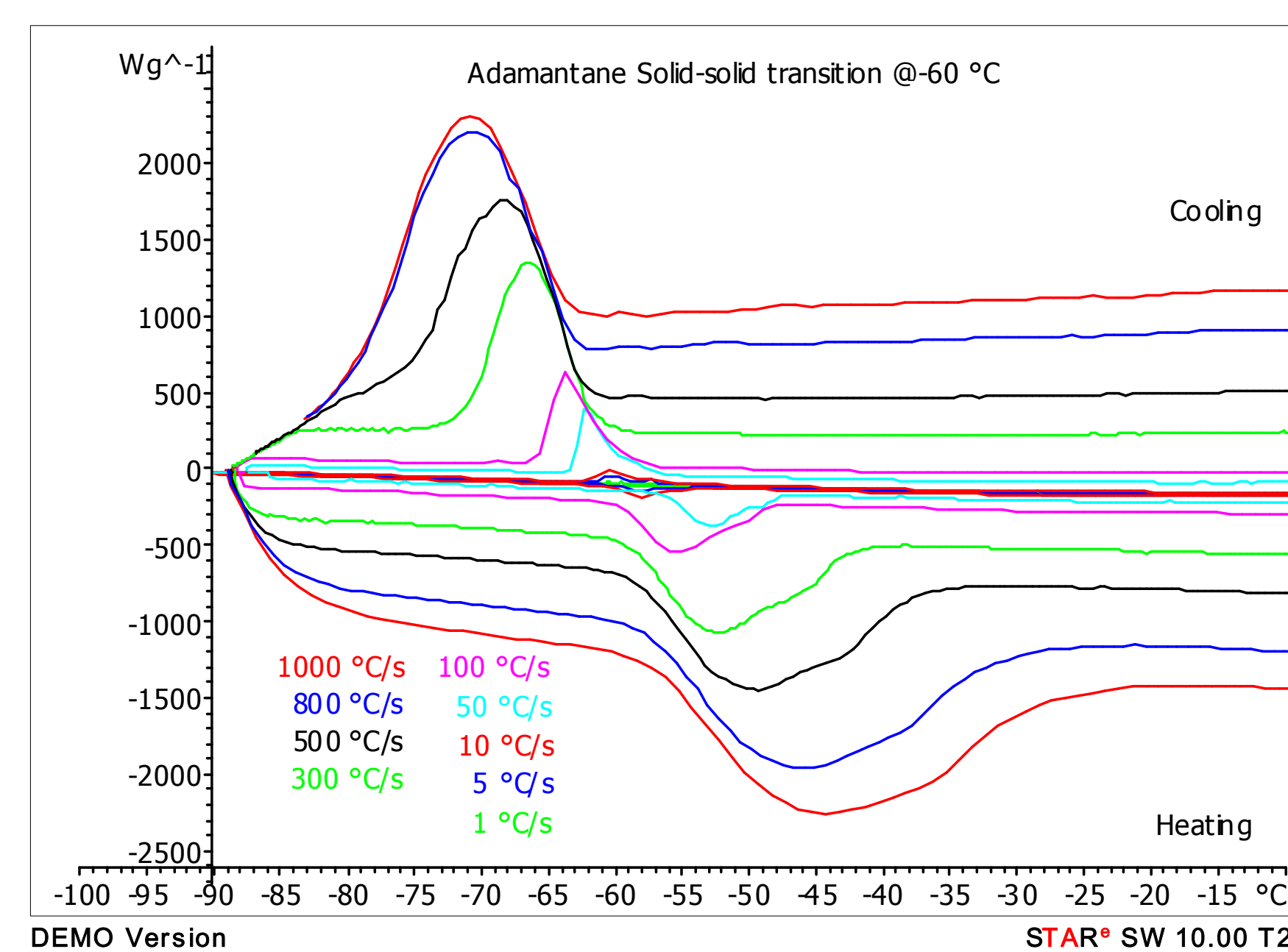
Before Calibration



After Calibration



4. Adamantane



5. Conclusion

- ❖ Nitrogen gas preferred for temperature range upon heating
- ❖ Helium gas preferred for cooling; limited only for special requirements
- ❖ Calibration sensor approved
- ❖ At low temperatures (-60 ° C) cooling rates up to 800 ° C/s are achieved

6. Outlook

- ❖ Evaluation applicability of indium calibration independent of sensor
- ❖ Further calibration with other calibrants, e.g. Liquid crystals, Sn etc.
- ❖ Symmetry check sensor
- ❖ Study polymeric systems, e.g. reorganisation phenomena, cold crystallization etc.